L 43027-66   EWT(m)/EWP(t)/ETI   IJP(c)   JD/HW/JH

ACC NR: AR6014367   SOURCE CODE: UR/0137/65/000/011/G030/G030

AUTHORS: Kuznetsov, V. K.; Mel'nikova, L. I.; Kalovkina, V. G.; Panova, L. S.

TITLE: Electrolytic deposition of zinc-nickel alloy

SOURCE: Ref. zh. Metallurgiya, Abs. 11G217

REF SOURCE: Sb. Zashchita met. ot korrozii. Kuybyshev, 1965, 47-52

TOPIC TAGS: zinc containing alloy, nickel containing alloy, electrolytic deposition

ABSTRACT: To obtain clear, bright depositions of Zn-Ni alloy with an Ni content of up to 2% the following electrolyte composition is recommended (in g/liter): Zn 32—42, Ni 0.75—0.196, NaCN 84—94, NaOH 71—82; temperature of electrolyte 18—25C; D = 2—3 amp/dm^2. Data on corrosion experiments have shown that the corrosion stability of Zn-Ni alloy is not lower and, in a number of cases, is higher than the corrosion stability of Zn. G. Svodtseva /Translation of abstract/

SUB CODE: 11

Card 1/1   UDC: 669.5'14.018.9

BILYK, G.I. [Bilyk, H.I.]; PANOVA, L.S.

Plant complexes of the Kamennyye Mogily Reserve. Ukr.bot.zhur.
16 no.6:40-48 '59.   (MIRA 13:5)

1. Institut botaniki AN USSR, otdel geobotaniki.
      (Volodarskoye District--Botany--Ecology)

PANOVA, L.S.

Certain aspects of the vegetation of the Kamennye Mogily Preserve.
Ukr.bot.zhur. 19 no.1:107-113 '62. (MIRA 15:4)

1. Institut botaniki AN USSR, otdel geobotaniki.
(Kamennye Mogily Preserve—Steppe flora)

PATENKO, A.P., redaktor; RABINOVICH, I.A., redaktor; PANOVA, L.Ya., tekh-
nicheskiy redaktor

[For high quality glass; work practice of the "Järvakandi" combine]
Za vysokoe kachestvo stekla; iz opyta raboty kollektiva kombinata
"IArvakandi." Moskva, Gos. izd-vo lit-ry po stroitel'nym materia-
lam, 1954. 47 p.   (MLRA 8:7)
        (Glass)

PANOVA, M.; RYBKINA, N.

The DAR-100M self-reducing telemeter. Avt. dor. no.10,
8-9 O '64.   (MIRA 17:12)

PANOVA, M.G.; LEVIN, V.I.

Study of the complex formation of yttrium. Part 3: Extraction
study of the dissociation of 8-hydroxyquinoline. Radiokhimiia
2 no.5:568-573 '60.   (MIRA 13:10)
                           (Quinolinol)

S/186/60/002/002/010/022
E071/E433

AUTHORS: Panova, M.G., Levin, V.I. and Brezhneva, N.Ye.

TITLE: A study of the formation of complexes of yttrium
             I. Yttrium oxinates

PERIODICAL: Radiokhimiya, 1960, Vol.2, No.2, pp.197-207

TEXT: The object of the work was to investigate the formation of
complexes of microquantities of yttrium.   The method of
investigation was based on changes in the coefficient of
distribution of an easily extractable complex with known stability
constants, on the introduction of additives, which form non-
extractable complexes, into the system.   As an auxiliary system,
the authors chose complexes of yttrium with 8-oxyquinoline (oxin),
which is of interest by itself as there are no data available on
this system in the literature.   The present paper describes the
first part of the work - a study of oxinate complexes of yttrium.
The measurement of the coefficients of distribution of yttrium
oxinate was done in a perchlorate solution with the ionic force
$\mu = 3.0$.   The distribution of yttrium was done radiometrically
using radioactive yttrium -90 or -91.   Initially, the usual
experimental procedure was adopted, i.e. shaking an aqueous solution
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of a required composition with a chloroform solution of oxin, but due to the hydrolysis of yttrium the reproducibility of results was poor and a long time was necessary to attain the equilibrium.   The procedure was modified in that 10 ml of 3 M sodium perchlorate solution containing yttrium was shaken with 10 ml of an oxin solution in chloroform.   After the separation of the organic phase, which contained practically all the yttrium, it was brought into contact with an aqueous solution containing no yttrium.   Then the phases were separated by centrifuging and the activity of yttrium measured in both phases.   The experimental temperature was $18 - 26°C$. The concentration of oxin in chloroform was 0.5 M in all experiments. At yttrium concentrations $\leqslant 10^{-6}$ M the coefficient of distribution was practically constant, i.e. was independent of concentration, but for concentrations above 10^{-6} M the coefficient of distribution increased.   Therefore, all the results used for the calculations of the stability constants of oxinate complexes were obtained at a concentration of yttrium below 10^{-6} M.   At these concentrations, the extraction takes place in the form of a simple oxinate YA_3; at higher concentrations mainly in the form of dimer $(YA_3)_2$.
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On the average 0.5 molecules of undissociated oxin enters the extractable complex. The constants of stability of oxinate complexes (log x_1 = 8.15 ± 0.14, log x_2 = 14.90 ± 0.25, log x_3 = 20.25 ± 0.35) were calculated by three methods: "method of two parameters" (D.Dyrssen, L.Sillen, Acta chem. Scand., 7, 663 (1953)); a modification of this method using three parameters and by the analytical method of least squares. The differences in the values obtained by the three methods were close to the limits of accuracy of the experimental results. It is pointed out that although the values of the obtained constants relate to the ion force μ = 3, nevertheless they were close to the values of constants for samarium oxinate obtained by Dyrssen (Ref.47: Sv.Kem.Tidskrift, 68, 212 (1956)). Part II of this paper (on sulphate, nitrate and chloride complexes) is published in the same issue, pp.208-214. There are 4 figures, 6 tables and 47 references: 11 Soviet-bloc and 36 non-Soviet-bloc. Four of the references to English language publications read as follows: L.Pokras, Chem.Educ., 33, 152, 223, 282 (1956); F.Spedding, J.Powell, W.Wheelwright, J.Am.Chem.Soc.,78,34 (1956); Card 3/4

A study of the formation ...   S/186/60/002/002/010/022
                                            E071/E433

J.Sarls, J.Choppin, J.Inorg.Nucl.Chem., 4, 62, (1957);
B.Blaustein, J.Gryder, J.Am.Chem.Soc., 79, 540 (1957).

SUBMITTED: May 25, 1959

Card 4/4

PANOVA, M.G.; LEVIN, V.I.; BREZHNEVA, N. Ye.

Complex formation by yttrium. Part 1: Yttrium oxinates.
Radiokhimiia 2 no.6:197-207 '60.   (MIRA 14:4)
(Yttrium compounds)
(Quinolinol)

PANOVA, M.G.; BREZHNEVA, N. Ye.

Complex formation by yttrium. Part 2: Sulfate, nitrate, and
chloride complexes. Radiokhimiia 2 no.6:208-214 '60.
(MIRA 14:4)
(Yttrium compounds)

AUTHORS: Panova, M.G., Brezhneva, N.Ye. and Levin, V.I.

TITLE: A study of the formation of complexes of yttrium
             II. Sulphate, nitrate and chloride complexes

TEXT: This is continuation of the work previously published
(Ref.1: same issue, pp.197-207).   The investigation of the
formation of yttrium complexes with sulphate, nitrate and chloride
ions was based on measuring the distribution of this metal in the
system: solution of 8-oxiquinoline in chloroform-aqueous solution,
at various concentrations of the above ions and at a constant ion
force $\mu = 3$.   The presence of the above ions in the system
causes a decrease in the coefficient of distribution of yttrium due
to the formation of complexes not extractable by chloroform, which
in turn can serve as a measure of the degree of formation of these
complexes.   The experimental procedure was the same as described
in Part I (Ref.1).   The calculation of the constants of formation
of non-extractable yttrium complexes (sulphate etc) was based on the
relationship derived between the coefficients of distribution of
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yttrium determined at the same pH but in the presence of sulphate (or another) ion and without it, i.e. by the method based on the same principle as that of D.Dyrssen and L.Sillen (Ref.2: Acta chem. Scand., 7, 663 (1953)). There are 3 figures, 3 tables and 10 references: 2 Soviet-bloc and 8 non-Soviet-bloc. Four of the references to English language publications read as follows: J.W.Newton, J.M.Arcand. J.Am.Chem.Soc., 75, 10, 2449 (1953); R.Connick, S.Mayer, J.Am.Chem.Soc., 73, 1176 (1951); F.H.Spedding, S.Jaffe, J.Am.Chem.Soc., 76, 3, 882 (1954); V.Bjerrum, G.Schwarzenbach and L.G.Sillen. Stability Constants of Metal-ion Complexes, with Solubility Products of Inorganic Substances, London (1958).

SUBMITTED: May 25, 1959

Card 2/2.)

PANOVA, M. G.

Cand Chem Sci - (diss) "Study of the process of complex-formation of ittrium and cerium in aqueous solutions." Moscow, 1961. 11 pp; (Academy of Sciences USSR, Inst of General and Inorganic Chemistry imeni N. S. Kurnakov); 150 copies; price not given; (KL, 6-61 sup, 199)

23877

3/186/6-/CC:/0:./ :·/ ·

A05·/A·:9

5 2000 (1273, 1238, 1274)

AUTHORS: Pinava M..., Le...., ..l. Br...eva N.l..

TITLE: A ...ua... u. *·e ...plex-f...a·..a .f y::::a:
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PERIODICAL: Radlek :m..a. v 3, z· · :96· 52-6·

TEXT: The a... ...ve u ·he method .f ..lu·il·ty measurements .f :ifficultly
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A study of the complex formation of yttrium

attaining the equilibrium state. The calculations of the stability constants of the yttrium and cerium oxalate complexes were conducted along the following lines.

The product of solubility S of cerium (or yttrium) oxalate $Me_2(C_2O_4)_3$ is expressed by the equation

$$S = a_{Me}^2 \cdot a^3 \qquad (1)$$

from which results $\quad a_{Me} = \dfrac{?}{?} \qquad (2)$

If three oxalate complexes $Me(C_2O_4)$, $Me(C_2O_4)_2$, $Me(C_2O_4)_3^{3-}$ are assumed to be formed, the conditions of the three equilibria are expressed thus:

$$a_{Me} \cdot a_{C_2O_4^{2-}} \cdots = a_{Me(C_2O_4)} \qquad (3)$$

$$a_{Me} \cdot a_{C_2O_4^{2-}}^2 \cdots 2 = a_{Me(C_2O_4)_2} \qquad (4)$$

$$a_{Me} \cdot a_{C_2O_4^{2-}}^3 \cdots = a_{Me(C_2O_4)_3} \qquad (5)$$

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where x_1, x_2, x_3 are the sum constants of stability of complex ions, a_{Me}, $a_{C_2O_4}^{2-}$ activities corresponding to metal and oxalate ions, which in turn can be expressed by

$$a_{Me} = [Me] \cdot \gamma_3 \qquad (6)$$

$$a_{C_2O_4^{2-}} = [C_2O_4^{2-}] \circ \gamma_2 \qquad (7)$$

where $[Me]$, $[C_2O_4^{2-}]$ are stoichiometric concentrations of the metal and oxalate ions, respectively, γ_2, γ_3 - the activity coefficients of the two-charge and three-charge ions, respectively. The total concentration of the metal ions in the solution is equal to:

$$[Me]_{total} = [Me^{3+}] + [Me(C_2O_4)^+] + [Me(C_2O_4)_2^-] + [Me(C_2O_4)_3^{3-}] \qquad (8)$$

using the relations (2-7) equation (8) is changed to:

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$$Me_{total} = \frac{a_{Me}}{\gamma_3} + \frac{a_{Me} \cdot a^{\ }_{C_2O_4^{2-}} \cdot \gamma_1}{\gamma_1} + \frac{a_{Me} \cdot a^2_{C_2O_4^{2-}} \cdot \gamma_2}{\gamma_1} + \frac{a_{Me} \cdot a^3_{C_2O_4^{2-}} \cdot \gamma_3}{\gamma_3} =$$

$$= a_{Me} \left[\frac{1}{3} + \frac{\gamma_1 \cdot a_{C_2O_4^{2-}}}{\gamma_1} + \frac{\gamma_2 \cdot a^2_{C_2O_4^{2-}}}{\gamma_1} + \frac{\gamma_3 \cdot a^3_{C_2O_4^{2-}}}{\gamma_3} \right] =$$

$$= \frac{S^{1/2}}{a^{3/2}_{C_2O_4^{2-}}} \cdot \left[\frac{1}{\gamma_3} + a_{C_2O_4^{2-}} \cdot \frac{\gamma_1}{\gamma_1} + a^2_{C_2O_4^{2-}} \cdot \frac{\gamma_2}{\gamma_1} + a^3_{C_2O_4^{2-}} \cdot \frac{\gamma_3}{\gamma_3} \right] \quad (\ .$$

where γ_1 is the activity coefficient of the one charge ion. In equation (
the unknown values are x_1, x_2, x_3 and S. In order to determine these the
two parameters α and β are introduced. Since the ionic strength was main

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tained constant in the experiments, the values of the activity coefficients are also considered constant, then

$$x_1 = \frac{T_1}{T_3} 10^a \cdot \beta^2 \qquad (10)$$

$$x_2 = \frac{T_1}{T_3} 10^{2a} \beta^2 \qquad (11)$$

and

$$x_3 = 10^{3a} \qquad (12)$$

By introducing the expression $y = a_{C_2O_4^{2-}} \cdot 10^a$ for convenience, equation (9) is changed thus: (13)

$$[Me]_{total} = \frac{S^{1/2}}{a_{C_2O_4^{2-}}^{3/2} \cdot T_3} \left(1 + y\beta^2 + y^2\beta^2 + y^3 \right) \qquad (14)$$

the expression:

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$$\left[Me\right]_{total} \cdot a^{3/2}_{C_2O_4^{2-}} = \frac{S^{1/2}}{T_3} \left(1 + y\beta^2 + y^2\beta^2 + y^3\right) \tag{15}$$

would then only depend on y. A graph is plotted of the relationship $\lg \left\{ \left[Me\right]_{total} \cdot a^{3/2}_{C_2O_4^{2-}} \right\} = f \left\{ \lg(a_{C_2O_4^{2-}}) \right\}$, by calculating the activity of the free ions of oxalate, depending on the pH and its stoichiometric concentration C_s. Oxalic acid dissociates according to:

$$H_2C_2O_4 \rightleftharpoons HC_2O_4^- + H^+$$

$$HC_2O_4^- \rightleftharpoons C_2O_4^{2-} + H^+$$
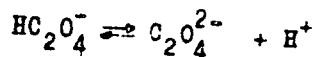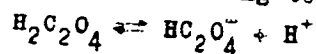
The corresponding dissociation constants are equal to (Ref 4):

$$K_1 = \frac{T_1 \cdot \left[HC_2O_4^-\right] \cdot a_{H^+}}{\left[H_2C_2O_4\right]} = 5.9 \cdot 10^{-2} \tag{16}$$

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$$K_2 = \frac{T_2 \cdot [C_2O_4^{2-}] \cdot a_{H^+}}{[HC_2O_4] \cdot T_1} = 6.4 \cdot 10^{-5} \qquad (17)$$

thus,

$$a_{C_2O_4^{2-}} = \frac{C_s}{\frac{1}{T_2} \cdot \frac{a_{H^+}}{K_2 \cdot \gamma} \cdot \frac{a_{H^+}^2}{L \cdot K_2}} \qquad (18)$$

The required values of T_1 and T_2 needed for the calculations were taken from Refs 2, 3. Knowing the concentration of the free ions of the oxalate in solution and the concentration of the metal or the residue the product $\{[Me] \cdot a_{C_2O_4^{2-}}^{3/2}\}$ is found. A graph of the relationship $\lg \{[Me] \cdot a^{3/2}\}$

to $\lg a_{C_2O_4^{2-}}$ (Fig. 2-3) is plotted. From equation (10-12) it is seen the

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$A051/A1?9$

In order to determine the stability constants, the parameters α and β must be calculated. Thus, the following maximum conditions are considered for expression (15), writing it down first in the logarithmic form:

$$f(y) = \lg[Me]_{total} + 3/2 \lg a_{C_2O_4}^{2-} + \lg S^{3/2} - \lg T_3 + \lg[1+y+y^2+y^4] \quad (1?)$$

at $y \rightarrow 0$

$$f_1(y) = \lg[Me]_{total} + 3/2 \lg a_{C_2O_4}^{2-} - 3/2 \lg S - \lg T_3 = A \quad (20)$$

A is determined from the intersection of the lower branch of the curve of the ordinate (Fig 2,3, Table 5). At $y \rightarrow \infty$

$$f_2(y) = \lg[Me]_{total} + 3/2 \lg a_{C_2O_4}^{2-} = A + 3 \lg y \quad (2?)$$

from which follows that the maximum value of the tangent of the angle of the curve's slope $f(y)$ is equal to 3. The intersection of the limit line $f_2(y)$ and horizontal limit line $f_1(y) = \lg[Me]_{total} + 3/2 \lg a_{C_2O_4}^{2-} = A$, corresponds to the condition $\lg y = 0$ (or $y = 1$).

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Since $y = 10^a \cdot a_{C_2O_4}^{2-}$, then $y = 1$, $a = -1$, $a_{C_2O_4}^{2-}$. The value of a is determined by drawing a perpendicular line on the abscissa axis from a point of intersection of the horizontal line $f_1(y) = 1g[C]_{total} + 3/2 1$, $a = 2 - $, with the limit line $f_2(y) = A + 3 \lg y$. The second parameter, β, is found from the value of the main function $f(y)$ in the point $y=1$. According to (1) at $y=1$

$$f(y)_{y=1} = A + \lg 2 + \lg(1 + \beta^2) \tag{22}$$

The value of $f(1)$ is found from the point of intersection of the vertical line drawn through the point of intersection of the limit line $f_2(y)$ an the line $f_1(y)$ A with the curve $f(y)$. Drawing a perpendicular line from this point on the ordinate axis, the value of $f(1)$ is found. Substituting it in equation (22), β is determined. Figs 2-3 show that the tangents to the curves $f(y)$ drawn at an angle, the tangent of which is equal to 3, pass through three points in the case of yttrium and through five points in the case of cerium. The authors assume that in the investigated range of concentration only two complexes are formed: $Mo(C_2O_4)^+$ and $Mo(C_2O_4)_2^-$. In this case the stability constants of the complexes are expressed by the equations.

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$$\frac{x_1 \cdot \tau_3}{\tau_1} = 10^a \cdot \beta \qquad (23) \qquad \frac{x_2 \cdot \tau_3}{\tau_1} = 10^{2a} \qquad (24)$$

and the main function $f(y)$ takes the form of:

$$f(y) - \lg \left\{ [Me]_{total} \cdot a_{C_2O_4^{2-}}^{3/2} \right\} = A + \lg \left[1 + y + y^2 \right] \qquad (25)$$

The equations of the corresponding limit lines at $y \to 0$ are then:

$$f_1(y) = \cdot \qquad (26) \qquad \text{At } y \to \infty : \quad f_2(y) = A + 2 \lg y \qquad (27).$$

The tangents to the curves $f(y)$ drawn at an angle the tangent of which is 2 in accordance with (27) pass through the entire middle part of the curves (Figs 2-3). The a parameter, similarly to the one previously described for the case of two complexes is found from the point of intersection $f_1(y)$ and $f_2(y)$ corresponding to the condition $y=1$. Parameter β is determined from the equation $f(y) = A + \lg (2 + \beta)$ (28) obtained from (25) at $y=1$. The average values of τ_1 and τ_3 are calculated from experimental data and the formula:

$$\bar{\tau} = \int_{\mu_1}^{\mu^2} \tau(\mu) \cdot d\mu / (\mu_2 - \mu_1) \qquad (29)$$

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The integration was performed graphically according to the method of rectangular triangles. In order to determine the three unknown factors in the given calculations two parameters were used, but three parameters can be introduced:

$$x_1 = \frac{\tau_1}{\tau_3} 10^a \cdot \beta_1 \quad (30); \quad x_2 = \frac{\tau_1}{\tau_3} 10^{2a} \cdot \beta_2 \quad (31); \quad x_3 = 10^{3a} \quad (32);$$

then $f(y) = A + \lg \left[1 + y\beta_1 + y^2\beta_2 + y^3\right]$ (33).

Parameter α is determined in this case as in the case of two parameters; $f(y)$ is found at $y=1$. $f(1) = A + \lg \left[2 + \beta_1 + \beta_2\right]$ (34), then another value of y is taken, $y=2$, and $f(y)$ at $y=2$ is:

$$f(y) = A + \lg \left[9 + 2\beta_1 + 4\beta_2\right] \quad (35).$$

These equations are solved with two unknowns, and first β_1 and then β_2 are found. The results of the calculations of the constants are given in Table 6. The agreement of results found by different methods of calculations shows that two parameters are sufficient. x_1 and x_2 are calculated correctly in both cases (Figs 2,3). The authors compare their graphical method of

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calculations to the results obtained by other authors (Ref 2). This compa-
rison shows that the values of the solubility product are much higher than
those found by other authors (Table 8). The values of the stability con-
stants, however, differ less from those of Crouthamal and Martin, as well as
Feibash (Ref 5). This is explained by the fact that the equilibrium between
the various forms of the dissolved complexes is reached much faster than the
equilibrium with the solid phase and is not subject to the effect of the
structure, contrary to the latter. There are 8 tables, 5 figures and 6
references: 2 Soviet-bloc, 4 non-Soviet-bloc.

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S/186/60/002/005/008/017
A051/A130

AUTHORS: Panova, M. G., Levin, V. I.

TITLE: A study of the complex-formation of ittrium III. A study of
            the dissociation of 8-oxyquinoline by the extraction method

PERIODICAL: Radiokhimiya, v. 2, no. 5, 1960, 568 - 573

TEXT: The authors have determined the values of the dissociation
constants of the complex-forming agent 8-oxyquinoline, at an ionic strength
of 3, using the extraction method, needed in the investigation of the
oxine and ittrium complex. In order to investigate the oxine dissociation
the change in the distribution coefficient of the oxine was measured, be-
tween the chloroform and aqueous solution, depending on the pH of the lat-
ter. The obtained data were used to calculate the dissociation constants.
The method used for measuring the distribution coefficients was as follows:
the initial solution of oxine of a certain concentration was prepared by
dissolving a substance recrystallized from alcohol, in chloroform. 3 M
solution of sodium perchlorate of the same volume was added through a gra-
duated funnel, to a chloroformed solution of the oxine, of a certain volume

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and concentration. The pH of the sodium perchlorate was regulated by addi-
tions of $HClO_4$ and NaOH. The contents of the funnel were mixed using a
mechanical vibrator for a period of 10 min. After a 10-minute lamination,
the phases were divided and the pH of the aqueous phase was measured. Then
an analysis was carried out for the oxine content in the aqueous and orga-
nic phases and in the initial solution by photometry of the intensity of the
coloring of the oxinate copper complex, for which purpose copper salts were
added to the samples. Copper was used for the colorimetric determination
of the oxine, thus, an excess of copper was used. Experiments were con-
ducted at 21 - 26°C. The method used for analysing the oxine content in the
organic phase and initial chloroform solution was as follows: 10 ml of 0.2 n
solution of copper acetate (pH about 5.5) were added to 10 ml of the initial
oxine solution. The phases were separated after a 10-minute period of mix-
ing and standing. The organic phase was subjected to photometry. If the
concentration of the oxine did not exceed 0.00* M, and if the color was too
intense, the solution was diluted with chloroform. Figure 1 shows the re-
lationship of the optical density of the chloroformed solution to the con-
centration of the oxine. The method for the analysis of the oxine content

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in the water phase is given as follows: The same volume of 0.4 n solution
of copper acetate was added to a certain volume of the water phase, then
pure chloroform was added in a volume, equal to the sum of the volumes of
the water phase and the copper solution, with the intention of transferring
the entire oxine from the water phase into the organic phase. After this,
the color of the organic phase was subjected to photometry. The described
analysis of the oxine is said to be applicable under the following two
conditions: 1) the entire oxine is in the form of a copper complex and
2) the entire copper complex is in the organic phase. The table shows
the results of the measurements of the distribution coefficients of oxine
at various pH. With an increase in the pH of the perchlorate solution, the
distribution coefficient first increases, in the interval pH = 6.1 - 7.3
hardly changes at all, and then, with a further increase of the pH once
again decreases (Figure 2). The calculation of the dissociation constants
were carried out in the following manner: the behaviour of oxine is
treated as a weak base and very weak acid (Ref. 14: R. G. W. Hollingshead,
Oxine and its derivatives. London, Butterworths, 1954). Thus, the follow-
ing processes in an aqueous solution:

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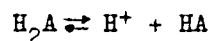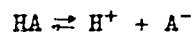
$$HA \rightleftarrows H^+ + A^-$$

$$H_2A \rightleftarrows H^+ + HA$$

with the corresponding equilibriums:

$$\frac{a_{H^+} \cdot a_{A^-}}{a_{HA}} = k_2 \quad (1) \qquad \frac{a_{HA} \cdot a_{H^+}}{a_{H_2A}} = k_1 \quad (2)$$

or

$$\frac{a_{H^+} \cdot [A^-]}{[HA]} = k_2 \cdot \frac{\gamma_{HA}}{\gamma_{A^-}} \quad (3) \qquad \frac{a_{H^+} \cdot [HA]}{[H_2A^+]} = k_1 \cdot \frac{\gamma_{H_2A^+}}{\gamma_{HA}} \quad (4).$$

where Ha is the non-dissociated oxine, A^- - the oxine ion, a_{H^+}, a_{A^-}, etc.,
- the activities of the corresponding ions in the solution, $[A^-]$, etc,
their stoichiometric concentrations, γ - coefficients of activity and

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A study of the complex-formation of ....

k_1, k_2 - the thermodynamic equilibrium constants of dissociation of the oxine. The so-called "mixed constants" were computed:

$$K_2 = \frac{k_2 \cdot \gamma_{HA}}{\gamma_{A^-}} \qquad \text{and} \qquad K_1 \frac{k_1 \cdot \gamma_{H_2A^+}}{\gamma_{HA}} \qquad \text{whereby equations (3)}$$

and (4) are converted to:

$$[A^-] = \frac{K_2 \cdot [HA]}{a_{H^+}} \quad (5) \qquad [H_2A^+] = \frac{a_{H^+}[HA]}{K_1} \quad (6).$$

The distribution coefficient of the non-dissociated oxine-D_{HA} was determined from relationship:

$$D_{HA} = \frac{[HA]_{org.}}{[HA]} \qquad (7) \quad .$$

where $[HA]_{org.}$ - is the oxine concentration in the organic phase. The ge-

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A study of the complex-formation of ....

neral concentration of the oxine in the water phase, C_A is said to be:

$$C_A = [HA] + [A^-] + [H_2A] \quad . \quad \text{or:} \quad C_A = [HA] + [HA]\frac{K_2}{a_{H^+}} + [HA]\frac{a_{H^+}}{K_1} =$$

$$= [HA]\left\{1 + \frac{K_2}{a_{H^+}} + \frac{a_{H^+}}{K_1}\right\} \tag{8}$$

D_A measured in the experiment is:

$$D_A = \frac{[HA]_{org}}{C_A} \quad (9), \text{ and from equations (7), (8), (9):}$$

$$D_A = \frac{D_{HA}}{1 + \frac{K_2}{a_{H^+}} + \frac{a_{H^+}}{K_1}} \quad (10) \text{ is obtained, or in the logarithmic form:}$$

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$$\log D_A = \log D_{HA} - \log \left\{ 1 + \frac{K_2}{a_{H^+}} + \frac{a_{H^+}}{K_1} \right\} \qquad (11).$$

The latter equation is said to describe the experimental relationship $D_A = f(pH)$. When pH is low, the (11) function is approximately said to be expressed by the straight line:

$$\log D_A = \log D_{HA} + \log K_1 + pH \qquad (12)$$

and when the pH is high, by the straight line:

$$\log D_A = \log D_{HA} - \log K_2 - pH \qquad (13)$$

Thus, it is concluded that the distribution coefficient changes of the oxine within the range of low and high pH can be expressed graphically by two straight lines with angles of decline, the tangents of which are equal to +1 and -1, $D_A = f(pH)$ (Figure 2). Next, the point of intersection of the asymptotes is found, by substracting equation (12) from (13) or reverse:

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$$\log K_1 K_2 = -2pH_{inter.} \tag{14}$$

where $pH_{inter.}$ is the abscissa of the point of intersection of the asymptotes. From Figure 2 it is taken that $pH_{inter.} = 7.3$, from which $\log K_1 K_2 = 14.6$. Differentiating (11) for pH and equating the derivative to zero:

$$10^{pH} \cdot K_2 - \frac{10^{-pH}}{K_1} = 0, \text{ from which } \log K_1 K_2 = -2pH_{max.}, \text{ i.e., equation}$$

(14). Substituting the value of $pH_{max.} = pH_{inter.}$ from (14) to (11):

$$\log D_{A, max.} = \log D_{HA} - \log \left\{ 1 + \frac{K_2}{\sqrt{K_1 K_2}} + \frac{\sqrt{K_1 K_2}}{K_1} \right\};$$

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or

$$\sqrt{\frac{K_2}{K_1}} = \frac{1}{2}\left(\frac{D_{HA}}{D_{A,\,max.}} - 1\right) \tag{15}$$

or from (12) and (13):

$$\sqrt{\frac{K_2}{K_1}} = \frac{D_{HA}}{D_{A,inter.}} \tag{16}$$

and solving (15) and (16) together, D_{HA} is determined:

$$D_{HA} = \frac{1}{\left(\dfrac{1}{D_{A,\,max.}} - \dfrac{2}{D_{A,\,inter.}}\right)} \tag{17}$$

The values of the distribution coefficients corresponding to the max $D_{A,max.}$ and to the point of intersection of the asymptotes $D_{A,\,inter.}$, are deter-

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S/186/60/002/005/008/017
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mined from the graph (Figure 2), thus, $D_{A, max.} = 630$, $D_{A, inter.} = 35,000$. These data are used to calculate the true value of the distribution coefficient of the non-dissociated oxine according to (12) and (13), yielding the following figures: $\log K_1 = -5.57 \pm 0.08$ $\log K_2 = -9.03 \pm 0.08$. The validity of the assumption that under the conditions of the analysis, the entire oxine is bound in the complex with the copper is proven: the stability of the complex is expressed through the equilibrium (Ref. 15: A.E. Martell, M. Calvin, Chemistry of the metal chelate compounds N.Y., 1952)

$$\frac{[CuA_2]}{[A^-]^2 \cdot [Cu^{2+}]} \simeq 10^{29} \qquad (18)$$

thus, from (18) and (5) :

$$\frac{[CuA_2]}{[HA]^2} = \frac{10^{29} \cdot 10^{-9.03 \cdot 2} \cdot [Cu^{2+}]}{a_{H^+}^2}$$

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under conditions of the analysis pH $\simeq$ 5.5. If the excess concentration of copper is no less than 0.01 M, then

$$\frac{[CuA_2]}{[HA]^2} = 10^{11} \cdot \frac{0.01}{(10^{-5.5})^2} = 10^{20}$$

The latter calculations relating to the water phase, and in the organic phase the same ratio will be:

$$\frac{D_{Cu}}{D_{HA}^2} \cdot 10^{20}.$$

The distribution coefficient of oxine D_{HA} is found to be equal to about 650.

The distribution coefficient of the copper-oxine complex is found to be equal to $D_{Cu} \simeq 1000$, whereby

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$$\frac{[CuA_2]_{org}}{[HA]^2_{org}} = \frac{10^{2.815} \cdot 10^{20}}{10^6} = 10^{17}$$

Thus, it is stated that at concentrations of interest of the oxine in both phases, the equilibrium is actually completely shifted toward the formation of the copper complex. Concluding, the authors point out that at pH $<$ 5.5 and pH $>$ 9.0, relationship of the distribution coefficient log of the oxine to the pH is approximately expressed by straight lines, with tangents of the angles of decline +1 and - 1, respectively. From this relationship of the distribution coeffient of oxine to the pH, the dissociation constants of the oxine could be calculated at μ = 3.0: pK_1 = 5.57 $\pm$ 0.08, pK_2 = 9.03 $\pm$ 0.08. There are 2 figures, 1 table, 18 formulae and 15 references: 3 Soviet-bloc, 12 non-Soviet-bloc. The four recent English language publications read as follows: T. Moeller, F.L. Pondsack, J. Am. Chem. Soc., 75, 9, 2258, 1953; H. Irving, J. A. D. Ewart, I. T. Wilson, J. Chem. Soc., 2672, 1949; R. G. W. Hollingshead. Oxine and its derivatives. London, Butterworths, 1954; A. E. Martell, M. Calvin. Chemistry of the metal chelate compounds N.Y., 1952.

Card 12/14

PANOVA, M.G.; LEVIN, V.I.; BREZHNEVA, N. Ye.

Complex formation by yttrium. Part 4: Oxalate complexes.
Radiokhimiia 3 no.1:52-61 '61.   (MIRA 14:3)
    (Cerium oxalate)   (Yttrium oxalate)

PANOVA, M. I.   Cand Med Sci

   Dissertation: "Reamputation of Legs." 18/4/50

Central Inst for Advancement of Physicians

8O Vecheryaya Moskva
Sum 71

LIST, YE. V.,   PANOVA, M. I.

Orthopedia

Report on the work of the Society of Orthopedists, Traumatologists and Workers of the
Prosthesis Enterprise of Moscow and Moscow Province for January-June 1951.   Khirurgiia no.
2, 1952.

Monthly List of Russian Accessions. Library of Congress, August 1952.   Unclassified.

LIST, YE. V., PANOVA, M. I.

Surgery

Report on the work of the Society of Orthopedists, Traumatologists and Workers of the Prosthesis Enterprise of Moscow and Moscow Province for September-December, 1951.
Khirurgiia No. 4, 1952.

9. Monthly List of Russian Accessions, Library of Congress, __August__ 1952 Uncl.

PANOVA, M.I.

In the Article "Plastic Operations" by N.N. Priorov about the Central Inst.
of Traumatology and Orthopedics, Cand. of Med. Sci. M.I. Panova, Head of the
Department of Restorative Surgery is pictured at a discussion of a new design
of Prosthesis.

SO: Soviet Union No 10 (56), October 1954.

PANOVA, M.I.

NECHAYEVA, Z.P.; PANOVA, M.I.

Report on the activity of the Society of Orthopedists, Traumatologists, and Prosthetists in Moscow and Moscow Province for January - June 1954. Khirurgiia no.11:94-95 N '54.   (MLRA 8:3)

      (MOSCOW PROVINCE--ORTHOPEDIA--SOCIETIES)

PANOVA, M.I

PANOVA, M.I., referent

Minutes of sessions Nos.218-220 of the Moscow and Moscow Province
Society of Traumatologists and Orthopedists. Ortop. travm. i
protez. 18 no.4:81-85 Jl-Ag '57.   (MIRA 11:1)
    (BONES--SURGERY)

Panova, M.I.

NOVACHENKO, N.P., prof.; PANOVA, M.I., starshiy nauchnyy sotrudnik

Attendance of some orthopedical and traumological institutions in
Czechoslovakia. Ortop., travm. protez. 19 no.1:82-85 Ja-F '58.

(MIRA 11:4)

1. Chlen-korrespondent AMN SSSR (for Novachenko)
(CZECHOSLOVAKIA--ORTHOPEDIA)

PANOVA, M.I., referent; NECHAYEVA, Z.P., referent

Minutes of sessions Nos.226-227 of the Society of Traumatologists
and Orthopedists of Moscow and Moscow Province. Ortop., travm.
protez. 19 no.1:86-88 Ja-F '58.   (MIRA 11:4)
        (ORTHOPEDIA)

PANOVA, M.I., referent

Minutes of session No.230 of the Society of Traumatologists and Orthopedists of Moscow and Moscow Province. Ortop.travm. i protez.
19 no.3:84-85 My-Je '58   (MIRA 11:7)
        (ORTHOPEDIA)

PANOVA, '!.I., referent.

Minutes of a meeting of the Moscow and Moscow Province Society of
Traumatologists and Orthopedists. Ortop. travm. protez., Moskva 19 no.6:
94-95 N-D '58.   (MIRA 12:1)
        (SURGERY)

PRIOROV, N.N., prof.; PANOVA, M.I., kand.med.nauk

Use of refrigerated bone grafts in traumatology and orthopetics.
Vest. AMN SSSR 14 no.11:3-8 '59.   (MIRA 13:3)

1. TSentral'nyy institut travmatologii i ortopedii Ministerstva
zdravookhraneniya SSSR. 2. Deystvitel'nyy chlen AMN SSSR (for Priorov).
          (BONE AND BONES transpl.)

VOLCHOK, A.K.; KASAVINA, B.S.; PANOVA, M.I.; TORBENKO, V.P.

Biochemical changes in the organism following the failure of fractures
to heal. Ortop.travm. i protez. 20 no.8:45-48 Ag '59.   (MIRA 12:11)

1. Iz TSentral'nogo instituta travmatologii i ortopedii (dir. - deyst-
vitel'nyy chlen AMN SSSR prof. N.N. Priorov).
(FRACTURES, UNUNITED, chemistry)

VOLKOV, M.V., doktor med. nauk; PANOVA, M.I., starshiy nauchnyy sotrudnik

Some problems of preservation and transplantation of homologous
tissues. Ortop., travm. i protez. no.9:11-16 '62.

(MIRA 17:11)

1. Adras avtorov: Moskva G-21, Teplyy pereulok, d.16, TSentral'nyy
institut travmatologii i ortopedii.

VOLKOV, M.V., prof.; PANOVA, M.I.; IMAMALIYEV, A.S.

Tissue preservation and bone homoplasty in clinical practice.
Khirurgiia 40 no.2:121-128 F '64.   (MIRA 17:7)

1. TSentral'nyy institut travmatologii i ortopedii (direktor -
chlen-korrespondent AMN SSSR prof. M.V. Volkov), Moskva.

PANOVA, M.I., starshiy nauchnyy sotrudnik; KRAMARENKO, G.N., kand.med.nauk

Surgery for severe cicatricial contractures of the knee joint.
Ortop.,travm.i protez. no.10:65-69 '61. (MIRA 14:10)

1. Iz TSentral'nogo instituta travmatologii i ortopedii (dir. -
deystvitel'nyy chlen AMN SSSR prof. N.N. Priorov [deceased]).
(KNEE--WOUNDS AND INJURIES)

PANOVA, M.I., kand.med.nauk (Moskva)

Some problems in tissue transplantation at the 18th Congress of
the International Society of Surgery. Ortrop.travm.i protez. 21
no.3:78-80 Mr '60.   (MIRA 14:3)
        (TRANSPLANTATION OF ORGANS, TISSUES, ETC.)

PANOVA, M.I.

Preservation and transplantation of homografts. Khirurgiia 36
                                                    (MIRA 13:12)
no.6:84-88 Je '60.
        (TRANSPLANTATION OF ORGANS, TISSUES, ETC.)

FONGAUZ, M.I. Prinimali uchastiye: KHRUSTALEVA, V.A.;SELINA,I.A.; VULIKH,
S.L.· PANOVA, M.K.; LUZHNOVA, M.A.; BUNIM, T.N.

Principal problems of hygiene in the production of phenol and
acetone by the cumene method. Uch.zap. Mosk.nauch.-issl. inst.
san. i gig. no.9:5-12 '61   (MIRA 16:11)

1. Moskovskiy nauchno-issledovatel'skiy institut gigiyeny imeni
Erismana (for Selina). 2. Groznenskaya gorodskaya sanitarno-
epidemiologicheskaya stantsiya (for Bunim).

BERESTOVA, V.I.; PANOVA, M.K.

Content of cobalt and copper in the organs and tissues of some
fur-bearing animals. Uch. zap. Petrozav. gos. un. 12 no.3:121-
125 '64.   (MIRA 19:1)

1. Kafedra biologicheskoy i organicheskoy khimii Petrozavodskogo
gosudarstvennogo universiteta imeni O.V. Kuusinena.

MELEKHINA, V.P.; PINIGIN, M.A.; Prinimali uchastiye: KHRUSTALEVA, V.A.;
    SELINA, I.A.; VULIKH,S.L.; PANOVA, M.K.; LUZHNOVA,M.A.; BUNIM,T.N.

Materials for evaluating the pollution of air by wastes in the
production of phenol and acetone by the cumene method. Uch.
zap. Mosk. nauch.-issl. inst. san. i gig. no.9:25-29 '61.
                                                (MIRA 16:11)

1. Moskovskiy nauchno-issledovatel'skiy institut gigiyeny
imeni F.F.Erismana (for Khrustaleva, Selina). Sotrudniki sa-
nitarno-epidemiologicheskoy stantsii goroda Groznogo (for Vulikh,
Panova, Luzhnova, Bunim).

PANOVA, M. V.

"Change of the Structure of a Current in Flowing Around A Cylinder." Sub 24
Dec 51, Moscow Inst of Engineers of Water Economy imeni V. R. Vil'yams

Dissertations presented for science and engineering degrees in Moscow during 1951.

SO: Sum. No. 480, 9 May 55

PANOVA, M.V.

AUTHOR: Ovchinnikov, L.N., Shur, A.S. and Panova, M.V.   11-10-1/23

TITLE: On the Absolute Age of Some Igneous, Metamorphic and Sedimentary
               Formations of the Urals (Ob absolyutnom vozraste nekotorykh
               izverzhennykh, metamorficheskikh i osadochnykh obrazovaniy
               Urala)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Geologicheskaya, 1957,
               # 10, p 3-14 (USSR)

ABSTRACT: The article deals with results obtained in determining the age
               of minerals and mountain rock formations of the Urals by means
               of the Argon method. The presented data support the possibil-
               ity to apply this method at igneous, sedimentary and meta-
               morphic formations. The Argon method for determining the ab-
               solute age is based on the radioactivity of potassium K^{40} with
               subsequent forming of Ar^{40} and requires the determination of
               potassium (K) and Argon (Ar) contents of the sample, as well
               as knowledge of the constants of both branches of K^{40} decay:
               K capture and β decay. The potassium content is determined by
               the chloro-platinate method. Extraction of Argon from samples
               and its determination is accomplished by a special device,
Card 1/5   constructed by V.G. Khlopin and E.K. Gerling, which operates

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On the Absolute Age of Some Igneous, Metamorphic and Sedimentary Formations
of the Urals

with an average error of 1.27 %. It is shown on Table 1 that
the average deviation for the age determination of rocks of
synchronous geologic origin varies between 1.1 - 2.1 %. A
comparison of ages of different minerals is given on Table 2,
on which coinciding results prove the reliability of the method.
Satisfactory analogy of the data can be observed in the entire
range of determined ages: from 2 billion to 160 million years.
It can be concluded that casual errors occuring with the Ar-
gon method are small and that the method is reliable at highly
variable contents of K, at different ages and with the use of
different mountain rocks and minerals. The authors demonstrate
on Table 3 the agreement of the data obtained by the Argon
method as compared to those of other methods. By especially
selected samples the age of mountain rocks was determined over
a wide range: from 2 billion years for fragments of feldspar
in ancient arkose layers up to 160-170 million years for Trias-
sic basalt and liparide effusions. A summary of results ob-
tained at determining the absolute age of mountain rocks and
minerals is given in Table 5, as for example: The augen gneiss

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On the Absolute Age of Some Igneous, Metamorphic and Sedimentary Formations
of the Urals

found in the Ufaley-Kusinsk district was the oldest among the
tested samples with 1,100 million years and belongs to the
Proterozoic era. The rocks from which sediments originate,as
found at the western slopes of the southern Urals, are of still
greater age, which was estimated at 1,700 million years. De-
termining the absolute age can greatly aid in discovering the
conditions under which mineral layers were formed, in establish-
ing the inter-relations, existing connections with mountain
ranges of igneous rocks, and geologic formations. One of the
most difficult question is the formation of pyrite deposits
and their connection with formations of igneous rocks. Determ-
ination of the ages of sericite layers, comprising the Se-
vernoye, Krasnogvardeyskoye, Yas'vinskoye and Sultanovskoye
deposits, which were recently found in the eastern greenstone
zone, has shown that these strata were formed simultaneously.
On the other hand, age determination may disclose non-existence
of geologic connections at locations where such have been
assumed. The Argon method enables to determine the absolute

Card 3/5   age of metamorphic formations, and thus the age of metamorphism.

On the Absolute Age of Some Igneous, Metamorphic and Sedimentary Formations
of the Urals

Instances must be mentioned, where the determination of the ab-
solute age did not agree with the established geologic pre-
sentation. According to V.M. Sergiyevskiy, the effusion centers
at the eastern slopes of the Urals had moved eastward in time
and at the regional forming of the Urals, each zone farther
east of intrusional mountain ranges ought to be of younger
age. In particular, the subvolcanic Auerbakhovskaya granitoid
intrusion, in contrast to the intrusion of the Glavnyy west-
ern zone, belongs to the subsequent central section of the
Upper Devonian intrusion stage. In our opinion, however,
this mountain range as well as the Kaldinskiy range, which is
located farther to the east (southern part of the Central Urals),
are of the same Upper Silurian age. Although the figures pre-
sented are not complete and require checking and more accurate
definition, they coincide with geologic data and offer the
possibility of wide application of the Argon method for solv-
ing the numerous geologic problems of the Urals.
There are 5 tables, 1 map and 18 references, of which 16 are
Card 4/5   Slavic (Russian).

11-10-1/23

On the Absolute Age of Some Igneous, Metamorphic and Sedimentary Formations of the Urals

ASSOCIATION: Mining and Geological Institute of the Urals Branch, USSR
Academy of Sciences, Sverdlovsk   (Gorno-geologicheskiy
institut Ural'skogo filiala AN SSSR, g. Sverdlovsk)

SUBMITTED: 5 July 1957

AVAILABLE: Library of Congress

Card 5/5

PANOVA, M. V.

11-1-27/29

AUTHOR: Pekarskaya, T.B.

TITLE: The Sixth Session of the Committee for Determining the Ab-
solute Age of Geologic Formations at the Department of Geo-
logic-Geographical Sciences (OGGN) of the USSR Academy of
Sciences at Sverdlovsk in May 1957 (Shestaya sessiya komissii
po opredeleniyu absolutnogo vozvrasta geologicheskikh for-
matsiy pri otdelenii geologo-geograficheskikh nauk (OGGN) AN
SSSR v maye 1957 g. v g. Sverdlovske)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Geologicheskaya, 1958,
1, pp 115-117 (USSR)

ABSTRACT: On 22 - 27 May 1957 the Committee for Determining the Ab-
solute Age of Geologic Formations convened at Sverdlovsk.
More than 200 scientists from different Academies of Sciences
of the USSR participated, whereby 43 lectures were held. It
was decided at the session to expand the work to the Urals
and other territories, and to improve the already known radio-
active methods for determining the absolute age. The con-
ference heard the following reports after D.I. Shcherbakov
had opened the session: 1. L.N. Ovchinikov, A.S. Shur, M.V.
Panova - Determination of Absolute Age of Volcanic Meta-
morphic and Sedimentary Rocks of the Urals. 2. M.A. Garris -

Card 1/6

The Sixth Session of the Committee for Determining the Absolute Age of
Geologic Formations at the Department of Geologic-Geographical Sciences
(OGGN) of the USSR Academy of Sciences at Sverdlovsk in May 1957

The First Results at Determining the Absolute Age by the
Potassium-Argon Method of Rocks at the Eastern Perimeter of
the Russian Plateau and Southern Urals. 3. L.V. Komlev,
S.I. Danilevich, B.K. L'vov, G.N. Kuchina, A.D. Mikhalev-
skaya, F.F. Fedorova - The Age of the Kochkarovskiy Magmatic
Complex of the Southern Urals According to Data Obtained by
the Lead and Argon Method. 4. L.A. Vardanyants - Several Re-
sults on the Composition and Structure of the Crystalline
Foundation of the Russian Plateau and Its Correlation With
the Urals and the Baltic Shield. 5. Kh.I. Amirkhanov, K.S.
Magatayev - Determination of Age of Sediments in the Oil-
Producing Provinces of the Dagestan ASSR. 6. N.I. Polevaya,
N.N. Chernova - The Age of Granitoids of the Trans-Baykal
Determined by Means of the Argon Method. 7. N.I. Polevaya -
Geochronology of the Far East. 8. G.D. Afanas'yev - The Use
of the K-Ar Method for Geology Judged by the Results Obtained
at Prospecting Operations for Rocks and Minerals in the
Caucasus. 9. Z.V. Studenikova, K.G. Knorre, S.I. Zykov, V.A.
Fedorova - Data on the Age of the Caucasus. 10. N.P. Semenenko,

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11-1-27/29

The Sixth Session of the Committee for Determining the Absolute Age of Geologic Formations at the Department of Geologic-Geographical Sciences (OGGN) of the USSR Academy of Sciences at Sverdlovsk in May 1957

M.N. Ivantishin, E.S. Burkser - Basic Data on Geochronology of the Ukrainian Pre-Cambrian. 11. Yu.I. Plovinkina, N.I. Polevaya, G.A. Murina - Geologic and Absolute Age of Granitoids of the Ukraine. 12. A.P. Vinogradov, A.I. Tugarinov, S.I. Zykov, V.A. Fedorova - The Age Determination of Ukrainian Granitoids. 13. N.P. Semenenko - Geochronology of the Pre-Cambrian in Africa. 14. L.V. Komlev, S.I. Danilevich, A.D. Mikhalevskaya, V.T. Savonenkov, M.S. Filippov - The Age of Geologic Formations of the South-Western Parts of the Ukrainian Pre-Cambrian (Podolia). 15. L.V. Komlev, S.I. Danilevich, K.S. Ivanova, V.T. Savonenkov, M.S. Filippov - New Data on the Age of the Ukrainian Pre-Cambrian. 16. L.V. Komlev, E.K. Gerling, K.K. Zhirov - The Age of the Akchatau Rare Metal Intrusion According to Data Obtained by the Helium Method for Monazites. 17. L.V. Komlev, S.I. Danilevich, S.I. Zykov, K.S. Ivanova, G.N. Kuchina, A.D. Mikhalevskaya, M.S. Filippov - The Age of the Rare Metal Akchatau Intrusion According to Data Obtained by the Lead and Argon Method. 18.

Card 3/6   V.V. Zhirova, S.I. Zykov, A.I. Tugarinov - The Suitability of

11-1-27/29

The Sixth Session of the Committee for Determining the Absolute Age of Geologic Formations at the Department of Geologic-Geographical Sciences (OGGN) of the USSR Academy of Sciences at Sverdlovsk in May 1957

Several Radioactive Minerals for the Age Determination. 19. I.Ye. Starik, E.V. Sobotovich, G.V. Avzdeyko, G.I. Lovtsyus, A.V. Lovtsyus - Sublimation as a Method for Determining Isotope Contents of Lead. 20. I.Ye. Starik, E.V. Sobotovich, G.V. Avzdeyko, G.I. Lovtsyus, A.V. Lovtsyus - The Method of Locating Lead in Radioactive Minerals. 21. S.I. Zykov, N.I. Stupnikova - The Determination of Isotope Contents of Small Quantities of Lead. 22. I.Ye. Starik, F.Ye. Starik, A.N. Yelizarova - Comparative Leaching Out of Several Isotopes. 23. I.Ye. Starik, F.Ye. Starik, Ye.P. Petryayev - Kinetics of the Process of Leaching. 24. I.Ye. Starik, K.F. Lazarev - The Role of Absorbing Processes at the Leaching Out of Isotopes of Several Elements From Monazite. 25. I.Ye. Starik, F.Ye. Starik, B.A. Mikhailov - The Question of Displacement of Isotopic Relations at Natural Formations. 26. Ye.V. Bortnitskiy - The Preservation of Radiogen Argon in Glauconite. 27. S.B. Brandt - The Method of Mass-Spectroscopic Determination of Radiogen Argon in Rocks. 28. I.Ye. Starik, A.Ya. Krylov, N.V. Baranovskaya, Yu.I. Silin - The Determination

Card 4/6   of Age by Means of the Argon Method by Sedimentary Rocks.

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The Sixth Session of the Committee for Determining the Absolute Age of
Geologic Formations at the Department of Geologic-Geographical Sciences
(OGGN) of the USSR Academy of Sciences at Sverdlovsk in May 1957

29. I.Ye. Starik, Kh.V. Protopopov - The Use of the Scintilla-
tion Method for the Determination of Age According to
Radiocarbon Contents. 30. V.I. Baranov, A.P. Novitskaya -
The Influence of Humidity on Emanation. 31. V.I. Baranov -
The Task of Determining the Age of Meteorites. 32. L.I.
Shmonina, V.V. Cherdyntsev, L.L. Koshkarova, V.F. Ostanenko -
The Examination of the Neutron Flow of the Earth's Crust.
33. I.Ye. Starik, S.B. Butomo, V.M. Drozhzhin, Kh.V. Proto-
popov - The Chemical Processing of Samples at the Radio-
carbonic Dating by the Scintillation Method. 34. N.I. Ne-
nashev - Prospects for the Application of the Method for the
Determining of the Absolute Age for the Separation of Magmatic
Formations. 35. V.I. Baranov, L.A. Kuz'mina - New Data Re-
lating to the Grows of Cores of Deep Sea Sedimentation. 36.
Kuznetsov - The Problem of the Determination of Age by the
Ion Method. 37. L.N. Ovchinnikov, N.A. Yarosh - The Method
of Spectroscopic Determination of Rubidium in Potassium
Minerals. 38. L.L. Shanin - Ways to Improve the Accuracy
Card 5/6   of Determining Radiogen Argon by Means of Isotopic Dis-

11-1-27/29

The Sixth Session of the Committee for Determining the Absolute Age of
· Geologic Formations at the Department of Geologic-Geographical Sciences
(OGGN) of the USSR Academy of Sciences at Sverdlovsk in May 1957

solution. 39. A.D. Yesikov - Information on the Activities
of the Age Laboratory IGEM of the USSR Academy of Sciences.
40. L.G. Vlasov - The Method of Determining Rubidium in
Minerals and Rocks. 41. A.N. Vorsin - Informations on the
Work of the West Siberian Branch of the USSR Academy of Scien-
ces. 42. A.N. Vorsin - Radio-Frequency Mass-Spectrometer
for Determining the Absolute Age of Rocks by the Potassium -
Argon Method.

AVAILABLE: Library of Congress

Card 6/6

PANOVA, N.

Playgrounds

Games on children's play-rounds. Klub No. 4, 1952.

9. Monthly List of Russian Accessions, Library of Congress, August 1952. 1953, Uncl.

GRUDEV, D., doktor sel'skokhoz. nauk; KURITSYN, N.; PANOVA, N.

Modification of the system for the receiving of cattle by the meat combines and pyaments for cattle based on the weight and quality of meat. Mias. ind. SSSR 34 no.4:37-39 '63.
(MIRA 16:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut myasnoy promyshlennosti.

PANOVA, N.

Games

Games on children's playgrounds. Klub, No. 4, 1952.

Monthly List of Russian Accessions, Library of Congress
August 1952. UNCLASSIFIED.

ANDREYANOV, V.G.; VOSKRESENSKIY, K.P.; GLUSHCHENKO, N.Ya.; PANOVA, N.F.

Study of the frequency and duration of periods of different water content of rivers of the U.S.S.R. Trudy GGI no.127:
227-276 '65.

(MIRA 18:9)

PANOVA, N.F

PANOVA, N.F.

Methods of calculating spring high water hydrographs under various physicogeographical conditions of the flatland territory of the U.S.S.R. Trudy GGI no.61:163-245 '57.   (MIRA 10:12)
                    (Rivers)   (Stream measurements)

PANOVA, N.F.

Possible errors in reducing the parameters of annual runoff frequency
curves to long periods of observation. Trudy GGI no.107:136-151
'63.   (MIRA 16:7)

(Runoff)

ALEKSANDROVA, G.I.; MIKUTSKAYA, B.A.; PLESHANOVA, R.A.; PANOVA, N.G ;
SMORODINTSEV, A.A.

Reactogenic and immunogenic properties and epidemiologic effec-
tiveness of extra attenuated vaccinal strains of the influenza
virus (observations in children of preschool age). Vop. virus.
10 no.1:67-73 Ja-F '65.   (MIRA 18:5)

1. Otdel virusologii Instituta eksperimental'noy meditsiny AMN
SSSR, Leningrad.

PANOVA, N. I.

USSR/Chemistry - Catalytic synthesis

Card 1/1   Pub. 151 - 26/38

Authors   : Kozlov, N. S., and Panova, N. I.

Title   : Catalytic condensation of acetylene with aromatic amines. Part 24.- Catalytic
              synthesis of 2-(p-methylphenyl)-quinoline and its derivatives

Periodical : Zhur. ob. khim. 24/2, 317-319, Feb 1954

Abstract   : The reaction of catalytic condensation of acetylene with various aromatic
              amines and p-toluyl aldehyde was investigated. The derivation of new 2-(p-
              methylphenyl)-quinoline, 6-methyl-2-(p-methylphenyl)-quinoline, 6-methoxy-2-
              (p-methylphenyl)-quinoline and 6-ethoxy-2-(p-methylphenyl)-quinoline as re-
              sult of catalytic condensation of acetylene with different aromatic hydrocar-
              bons is described. The chemical properties of these new derivatives are
              listed. Two USSR references (1938 and 1953).

Institution : State Pedagogical Institute, Molotov

Submitted   : July 28, 1953
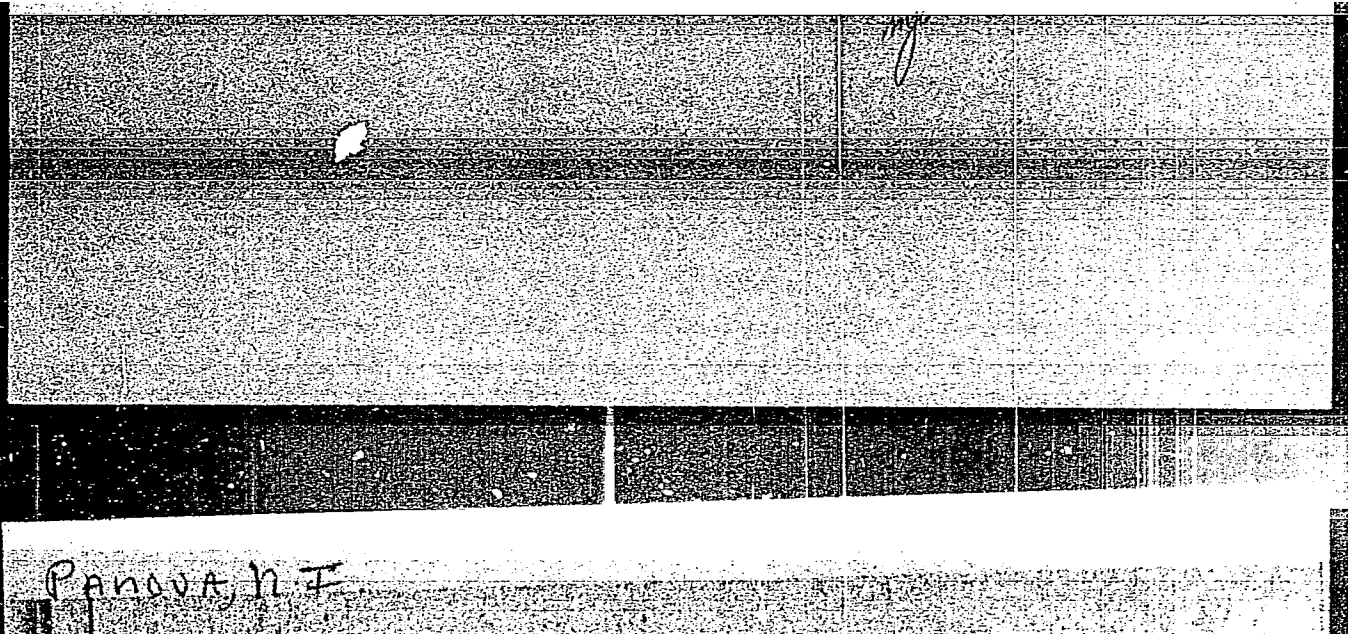
Panova, N.I.

79-12-8/43

AUTHORS: Kozlov, N. S., Panova, N. I.

TITLE: The Catalytic Amination of Organic Compounds (Kataliticheskoye aminirovaniye organicheskikh soyedineniy). VI. Amination of Acid Esters of the Aliphatic Series (VI. Aminirovaniye slozhnykh efirov kislot alifaticheskogo ryada).

ABSTRACT: The reaction of the esters with ammonia, has hitherto not been investigated sufficiently, although in publications it represents the general production method of acid-amides. Thereby it was stated that the amido-formation essentially takes place easier with ammonia under pressure. In the present work the authors put up the task to investigate more exactly this method described in patent publications. The vapours of the

stream. 7 different esters were made to pass over a heated catalyst in an ammonia lyst served: Activated granulated aluminium oxide, aluminium oxide with 10% of thorium oxide, aluminium oxide with 10% of silicon oxide and glassy silica from a factory. The aluminium oxide effected most efficaciously, the silica effected weakest. In all cases it was observed that in the presence of the

Card 1/2

The Catalytic Amination of Organic Compounds. VI. Amination of   79-12-8/43
Acid Esters of the Aliphatic Series.

interaction of the ammonia with esters from the alcohol re-
sidue the corresponding amine, and from the acid residue the
nitrile formed, according to the following formula
$R-COOR' + 2NH_3 = R-CN + R'NH_2 + 2 H_2O$. In reality, this re-
action takes place under the formation of intermediate pro-
ducts. The product effected consists of a mixture of primary,
secondary and tertiary amines. There are 1 table and 13 re-
ferences, 11 of which are Slavic.

ASSOCIATION: **Perm' Pedagogical Institute**   (Permskiy pedagogicheskiy
institut).

SUBMITTED: January 31, 1957

AVAILABLE: Library of Congress

1. Organic compounds - Catalysis   2.   Amines - Chemical
    reactions   3.   Esters - Chemical reactions
4. Aluminum oxide catalysts - Applications
Card 2/2   5.   Silica catalyst - Applications

KOZLOV, N.S.; PANOVA, N.I.

Catalytic amination of organic compounds. Part 7:Catalytic
conversions in butylamine series. Zhur.ob.khim. 28 no.9:
2384-2386 S '58.   (MIRA 11:11)
                    (Butylamine)

Panova, N.I.

SOKOLOVA, Ye.V.; PESIS, A.S.; PANOVA, N.I.

Photometric determination of cobalt with pyrazolone derivatives [with summary in English]. Zhur.anal.khim. 12 no.4:489-494 Jl-Ag '57.

(MIRA 10:10)

1.Molotovskiy meditsinskiy institut.

(Cobalt)   (Photometry)

PANOVA, N I

KOZLOV, N.S.; PANOVA, N.I.

Catalytic amination of organic compounds. Part 6: Amination of esters
of aliphatic acids. Zhur. ob. khim. 27 no.12:3208-3210 D '57.

(MIRA 11:3)

1. Permskiy pedagogicheskiy institut.
(Amination)   (Esters)

PANOVA, M I.

KOZLOV, N.S.; PANOVA, N.I.

Catalytic condensation of acetylene with aromatic amines. Part 24.
Catalytic synthesis of 2-(η-methylphenyl)-quinoline and its deri-
vatives. Zhur.ob.khim. 24 no.2:317-319 F '54.   (MLRA 7:4)

1. Molotovskiy Gosudarstvennyy pedagogicheskiy institut.
                                                    (Quinoline)

YAKOVLEV, K.A.; BASIN, Yu.G.; KOVALENKO, N.G.; PANOVA, N.I.

Two-channel current generator. Prib. i tekh. eksp. 8 no.2:69-72
(MIRA 16:4)
Mr-Ap '63.

1. Fiziko-tekhnicheskiy institut AN Gruzinskoy SSR.
(Electric generators)

LAPKIN, I.I.; PANOVA, N.I.

Reactions of metal halide alcoholates. Part 11: New method of
synthesizing thio ethers of the aromatic series. Zhur.ob.khim.
32 no.3:745-748 Mr '62.
(MIRA 15:3)

1. Permskiy gosudarstvennyy universitet.
(Sulfides)

PANOVA, N. I.

PANOVA, N. I. - "Skollergic reactions in overtired and short-term reaction ...   . Kov,
    1955. Khar'kov Medical Inst. (Dissertation for degree of Candidate in Medical
    Sciences.)

SO: Knizhnaya letopis', No. 1, 10 November 1955, Moscow.

88430
S/056/60/039/006/018/063
B006/B056

24.6900
AUTHORS: Adamovich, M. I., Panova, N. M., Popova, V. M., Yagudina, F.R.

TITLE: Ratio of the Cross Sections of Negative and Positive Photo-meson Production on Beryllium

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 39, No. 6(12), pp. 1585 - 1588

TEXT: The yield of charged photomesons is, in general, proportional to $A^{2/3}$, but the ratio for high-energy pions $\pi^- - \pi^+$, denoted by N^-/N^+, shows a considerably higher value for some nuclei, thus also for beryllium. Thus, N^-/N^+, for 56-Mev mesons produced by photons of $E_{max} = 256$ Mev, is equal to 3.3 ± 0.3, whereas, according to the $A^{2/3}$ law, it ought to amount to only 1.51. For slow mesons, the law is, however, correct. To explain this discrepancy, the authors measured the ratio σ^-/σ^+ for pions of medium energies on beryllium. By means of the 250-Mev photon beam from the synchrotron of the FIAN, a 3-mm thick beryllium target was irradiated; the mesons leaving the target under an angle of 90^0 to the photon beam

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Ratio of the Cross Sections of Negative and   S/056/60/039/006/018/063
Positive Photomeson Production on Beryllium   B006/B056

were recorded in a НИКФИ-Р (NIKFI-R) 400μ thick emulsion. Of all tracks
of pions stopped in the emulsion, those within the energy interval of
12 - 40 Mev were selected, for which the correction for Coulomb inter-
action between pion and residual nucleus is negligible, and in addition,
the ratio σ^-/σ^+ for free nucleons is known. Altogether, 981 π^- - and
370 π^+ mesons were recorded; it was found that $N^-/N^+ = 2.65\pm0.22$, and
that the pion yields are practically independent of E_π. The yields may be

described by the equations $N^-(E_\pi,\theta) = \int_{E_n^-}^{E_{max}} C\sigma^-(E_\pi,\theta)f(E_\gamma)dE_\gamma$ and

$N^+(E_\pi,\theta) = \int_{E_n^+}^{E_{max}} C\sigma^+(E_\pi,\theta)f(E_\gamma)dE_\gamma$, where C denotes the number of nuclei

per cm^2 of the target, $\sigma^\pm(E_\pi,\theta)$ the pion production cross section for E_π
and the angle θ, $f(E_\gamma)$ is the photon spectrum $\sigma^-/\sigma^+ = k(N^-/N^+)$; for
$E_{max} = 250$ Mev, $\bar{E}_\pi = 26$ Mev, $\theta = 90°$ one obtains $k = 0.68$. N^-/N^+ was

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Ratio of the Cross Sections of Negative and   S/056/60/039/006/018/063
Positive Photomeson Production on Beryllium   B006/B056

experimentally determined as 2.65 ± 0.22; thus, one obtains
$\sigma^-/\sigma^+ = 1.8 \pm 0.15$ as a ratio of the mean cross sections in the photon
energy interval of from $E_\pi^{\pm}$ to E_{max} and in the meson energy interval of
12 - 40 Mev. This value agrees well with those found by other authors.
The anomalous behavior of the yield ratio N^-/N^+ may be explained by the
fact that the π^- and π^+ mesons have different production thresholds. The
authors thank Professor P. A. Cherenkov, Professor V. I. Gol'danskiy,
E. G. Gorzhevskaya, and S. P. Kharlamov for discussions. There are
2 figures, 1 table, and 10 references: 3 Soviet and 7 US.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR
             (Institute of Physics imeni P. N. Lebedev of the Academy of
             Sciences USSR)

SUBMITTED: July 12, 1960

Card 3/3

PANOVA, N.M.

S/056/61/041/006/023/054
B102/B138

AUTHORS: Adamovidh, M. I., Gorzhevskaya, E. G., Larionova, V. G.,
             Panova, N. M., Popova, V. M., Kharlamov, S. P., Yagudina, F.R.

TITLE: The energy dependence of the photoproduction cross section of
             π^+ mesons on hydrogen near the threshold

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 41,
             no. 6(12), 1961, 1811-1817

TEXT: The paper gives results of π^+ photoproduction cross section
measurements made in the photon energy range from 167 to 212 Mev at an
angle $\theta = \arccos(k - 0.93)/kq$, i. e. the angle in the c. m. s. at the
contribution of the non-physical region to the dispersion integral
vanishes. k denotes the photon momentum, 0.93 is its threshold, q and ·
are momentum and total energy of the pion, θ the angle of emission of the
meson; $\hbar = c = \mu = 1$. The energy range was chosen so as to satisfy the
relation $k\hbar - kq \cos\theta = 0.93$; it holds exactly for 195-Mev photons, for
167 and 212 Mev it is 0.88 and 0.99, which are both close to the threshold
value. The photon ray from the synchrotron of the FIAN with a maximum
Card 1/8 4

The energy dependence of the ...

S/056/61/041/006/023/054
B102/B138

energy of 250 Mev was collimated and directed on to the hydrogen target, a
brass cylinder of 17μ wall thickness, placed in a vacuum chamber. The
detector was a stack of 50 layers of НИКФИ БК-400 (NIKFI BK-400) emulsion
plates. It was placed between two 2cm-thick emulsion blocks and fixed so that
the mesons struck its end. The emulsions were evaluated as usual, by
МБИ-1 (MBI-1) microscopes. All π-μ decay events were selected. An area
of 340 cm^2 yielded 3322 π-μ decays and 64 π$^-$ decays. The differential
photoproduction cross sections were plotted after applying corrections for
energy loss, scattering meson decay and background (Fig. 3). The results
are in good agreement with dispersion theory, where the imaginary part of
the resonance amplitude is determined empirically. The experimental results
were treated by the method of least squares to find the threshold value of
the matrix element of π$^+$ photoproduction $\chi^{-1}d\sigma/d\Omega$ and its dependence on q^2;
$\chi = (q/k)(1+\nu/M)^{-2}$, M - nucleon mass. For $0.17 < q^2 < 0.74$

$$\frac{1}{\chi}\frac{d\sigma}{d\Omega}\left[10^{-29}\frac{cм^2}{cтеpaд}\right] = (1.90\pm0.15) - (0.34\pm0.22)\,q^2,$$ (5)

$$\frac{1}{\chi}\frac{d\sigma}{d\Omega}\left[10^{-29}\frac{cм^2}{cтеpaд}\right] = (2.39\pm0.21) - (2.87\pm0.93)\,q^2 + (2.80\pm1.0)\,q^4,$$ (6)

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The energy dependence of the ...

was found. The threshold value was determined from power expansions of the squares of the matrix elements, $a_o = (1.90 \pm 0.15) \cdot 10^{-29}$ $cm^2/$steradian, which is in good agreement with the theoretical value, $a_o = 2.04 \cdot 10^{-29} cm^2/$sterad. Experimentally, $\sigma^-/\sigma^+ = 1.34 \pm 0.11$ was found. Using the theoretical a_o value, the calculated value is $\sigma^-/\sigma^+ = 1.28$. The pion photoproduction cross section as a function of the photoproduction amplitudes is given by (9)

$$d\sigma/d\Omega = (q/k)\{|F_1|^2 + |F_2|^2 - 2\text{Re}\, F_1^* F_2 \cos\theta + \\ + \tfrac{1}{2}\sin^2\theta\,[|F_3|^2 + |F_4|^2 + 2\text{Re}\, F_3^* F_4 + 2\text{Re}\, F_1^* F_4 + 2\text{Re}\, F_3^* F_4 \cos\theta]\}.$$

with

$$F_1 = \sqrt{2}F_{10} - \sqrt{2}F_{11}\cos\theta, \qquad F_2 = \sqrt{2}F_{20},$$
$$F_3 = \sqrt{2}F_{30} + \sqrt{2}F_{31}/(1-\beta\cos\theta), \qquad F_4 = \sqrt{2}F_{41}/(1-\beta\cos\theta);$$

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The energy dependence of the ...

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β denotes pion velocity. From experimental data for 15 and 165° in the c. m. s. the amplitudes were calculated for 185-Mev photons:

$$[(F_{10})_1 = (1,81 \pm 0,034) \cdot 10^{-2}, \qquad (F_{11} + F_{10})_1 = - (0,105 \pm 0,034) \cdot 10^{-2};$$

$$(F_{10})_2 = - (1,81 \pm 0,034) \cdot 10^{-2}, \qquad (F_{11} + F_{20})_2 = (0,105 \pm 0,034) \cdot 10^{-2}.$$

The authors thank Professor P. A. Cherenkov for help, A. M. Baldin and A. I. Lebedev for discussions and A. A. Svetlov, Engineer, for assistance. There are 5 figures, 2 tables, and 15 references: 3 Soviet and 12 non-Soviet. The four most recent references to English-language publications read as follows: J. Hamilton, W. S. Woolcock. Phys. Rev. 118, 291, 1960; N. P. Samios. Phys. Rev. Lett., 4, 470, 1960; M. Derrick et al. Phys. Rev. Lett., 5, 230, 1960; A. F. Dunaitsev et al. Proc. 1960 Ann. Intern. conf. on high energy physics at Rochester, Publ. Univ. Rochester 1961, p. 181.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR
               (Physics Institute imeni P. N. Lebedev of the Academy of
               Sciences USSR)

SUBMITTED: July 31, 1961

Card 4/4

ADAMOVICH, M.I.; GORZHEVSKAYA, E.G.; LARIONOVA, V.G.; PANOVA, N.M.; POPOVA,
V.M.; KHARLAMOV, S.P.; YAGUDINA, F.R.

Energy dependence of the cross section for the photoproduction of
π^{+}-mesons on hydrogen near the threshold. Zhur. eksp. i teor. fiz.
41 no.6:1811-1817 D '61.
(MIRA 15:1)

1. Fizicheskiy institut imeni P.N.Lebedeva AN SSSR.
(Photonuclear reactions) (Mesons) (Hydrogen)

ADAMOVICH, M.I.; PANOVA, N.M.; POPOVA, V.M.; YAGUDINA, F.R.

Ratio of cross sections for positive and negative photomeson
production from beryllium. 'Zhur. eksp. i teor. fiz. 39 no. 6:1585-
1588 D '60.   (MIRA 14:1)

1. Fizicheskiy institut im. P.N. Lebedeva Akademii nauk SSSR.
                    (Mesons) (Beryllium)

PANOVA, N.M.; SOKOLOV, A.D.; TIMOFEYEV, A.V.; FEDOROV, S.V.

Effect of the quality of mummy on the dielectric strength of molding powders. Plast. massy no.12:62-64 '60.   (MIRA 13:12)
(Plastics--Electric properties)   (Pigments)